

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF NEW YORK**

RUSSELL DOVER, HENRY HORSEY, CODY  
RANK, and SUZETTE PERRY, on behalf of  
themselves and all others similarly situated,

Plaintiffs

-vs.-

BRITISH AIRWAYS, PLC (UK),

Defendant.

Case No. 1:12-cv-05567 (RJD) (MDG)

Judge: Raymond J. Dearie

Magistrate Judge: Marilyn D. Go

**MEMORANDUM IN SUPPORT OF PLAINTIFFS' MOTION  
TO EXCLUDE ALL TESTIMONY FROM DR. ANDREW K. G. HILDRETH**

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## TABLE OF CONTENTS

|   | Page |
|---|------|
| SUMMARY OF THE ARGUMENT .....   | 1    |
| I. LEGAL STANDARD.....  | 1    |
| II. RELEVANT BACKGROUND .....   | 2    |
| A. Dr. Jonathan Arnold has opined that the “fuel surcharge” is not<br>related to or based on the price (or cost) of fuel from an economic<br>perspective. ....  | 2    |
| B. Dr. Hildreth’s at-issue opinions .....   | 2    |
| III. DR. HILDRETH’S TESTIMONY SHOULD BE EXCLUDED<br>BECAUSE IT IS UNRELIABLE AND IRRELEVANT. ....   | 3    |
| A. Dr. Hildreth conducted his statistical tests in such a way that even<br>completely random numbers will appear related to each other 75%<br>of the time. .... | 3    |
| B. Dr. Hildreth wrongly claims that correlation is the same as<br>causation. ....   | 5    |
| C. Dr. Hildreth’s attempt to rebut the r-squared analysis is not<br>relevant to any issue in this case. ....  | 6    |
| CONCLUSION.....   | 8    |

## TABLE OF AUTHORITIES

## Page

CASES

|  |      |
|--|------|
| <i>Apple, Inc. v. Samsung Electronics Co.</i> ,<br>No. 12-CV-00630-LHK, 2014 WL 794328 (N.D. Cal. Feb. 25, 2014).....  | 4    |
| <i>Bazemore v. Friday</i> ,<br>478 U.S. 385 (1986).....  | 4    |
| <i>Blake v. Securitas Sec. Servs., Inc.</i> ,<br>292 F.R.D. 15 (D.D.C. 2013).....  | 7    |
| <i>Carpenters Pension Trust Fund of St. Louis v. Barclays PLC</i> ,<br>No. 12-CV-5329 SAS, 2015 WL 5000849 (S.D.N.Y. Aug. 20, 2015) .....  | 4    |
| <i>Colon v. Abbott Labs.</i> ,<br>397 F. Supp. 2d 405 (E.D.N.Y. 2005) .....  | 1    |
| <i>Equal Employment Opportunity Comm’n v. JBS USA, LLC</i> ,<br>No. 10-CV-02103-PAB-KLM, 2014 WL 2922625 (D. Colo. June 27, 2014) .....  | 7    |
| <i>Horvath v. City of New York</i> ,<br>No. 12 CV 6005 RJD JMA, 2015 WL 1757759 (E.D.N.Y. Apr. 17, 2015).....  | 1    |
| <i>Huss v. Gayden</i> ,<br>571 F.3d 442 (5th Cir. 2009) .....  | 6    |
| <i>In re Pandora Media, Inc.</i> ,<br>6 F. Supp. 3d 317 (S.D.N.Y. 2014), <i>aff’d sub nom. Pandora Media, Inc. v.</i><br><i>Am. Soc. of Composers, Authors &amp; Publishers</i> , 785 F.3d 73 (2d Cir. 2015) ..... | 6    |
| <i>Nimely v. City of New York</i> ,<br>414 F.3d 381 (2d Cir. 2005) .....   | 1, 4 |
| <i>Norris v. Baxter Healthcare Corp.</i> ,<br>397 F.3d 878 (10th Cir. 2005) .....  | 6    |
| <i>Pierson v. Ford Motor Co.</i> ,<br>No. C 06-6503 PJH, 2009 WL 1034233 (N.D. Cal. Apr. 16, 2009) .....   | 7    |
| <i>Ruggiero v. Warner–Lambert Co.</i> ,<br>424 F.3d 249 (2d Cir. 2005) .....   | 4    |
| <i>State Farm Fire &amp; Cas. Co. v. Electrolux Home Products, Inc.</i> ,<br>980 F. Supp. 2d 1031 (N.D. Ind. 2013) .....   | 4    |
| <i>Theoharis v. Rongen</i> ,<br>No. C13-1345RAJ, 2014 WL 3563386 (W.D. Wash. July 18, 2014) .....  | 7    |
| <i>Valente v. Textron, Inc.</i> ,<br>559 F. App’x 11 (2d Cir. 2014) .....  | 4    |

**TABLE OF AUTHORITIES**  
**(continued)**

|   | <b>Page</b> |
|---|-------------|
| <i>Werdebaugh v. Blue Diamond Growers</i> ,<br>No. 12-CV-02724-LHK, 2014 WL 7148923 (N.D. Cal. Dec. 15, 2014) ..... | 4           |

### **SUMMARY OF THE ARGUMENT**

One month ago—long after the Court’s deadline for expert disclosures closed—British Airways, PLC (“BA”) submitted an expert report from a “surprise” witness, Dr. Andrew K. G. Hildreth. This witness is an economist who has attempted to offer two opinions: (1) that there is significant correlation between BA’s “fuel surcharge” and the price of jet fuel; and (2) that BA’s “fuel surcharge” was highly “determined by the variation in the price (or cost) of jet fuel kerosene.”

The core problem with BA’s attempt to offer this 11<sup>th</sup> hour testimony is simple: it is without any scientific basis. This is so in two senses. First, economists widely agree that Dr. Hildreth performed his statistical tests unreliably. He performed his tests in a manner that can cause even completely random numbers to appear related 75% of the time—a coin flip would be better. When Dr. Hildreth’s tests are performed correctly, they do *not* show a statistically significant relationship between the “fuel surcharge” and fuel. Second, statistics show correlation, they do not show causation. Even if Dr. Hildreth had performed his tests properly, he still could not say that changes in BA’s “fuel surcharge” were *caused* by variation in the price of fuel.

For these reasons, and because part of his testimony is simply irrelevant, Plaintiffs respectfully ask this Court to bar Dr. Hildreth’s testimony.

#### **I. LEGAL STANDARD**

There is “a liberal standard of admissibility for expert opinions.” *Nimely v. City of New York*, 414 F.3d 381, 395 (2d Cir. 2005). Nevertheless, expert testimony must be excluded if it is irrelevant or unreliable. *See, e.g., Horvath v. City of New York*, No. 12 CV 6005 RJD JMA, 2015 WL 1757759, at \*8 (E.D.N.Y. Apr. 17, 2015) (Dearie, J.); *Colon v. Abbott Labs.*, 397 F. Supp. 2d 405, 413-14 (E.D.N.Y. 2005) (Dearie, J.).

## II. RELEVANT BACKGROUND

### A. Dr. Jonathan Arnold has opined that the “fuel surcharge” is not related to or based on the price (or cost) of fuel from an economic perspective.

BA offers Dr. Hildreth’s testimony in rebuttal to Dr. Jonathan Arnold. Dr. Arnold is former chief economist for the New York Attorney General, and he taught economics at a number of universities including Columbia and the University of Chicago. Dr. Arnold has concluded, as a matter of economics, that the “fuel surcharge” does not “reflect changes in either the price of fuel . . . or BA’s cost of fuel,” and that “the data indicate that [those charges] were not closely related to changes in fuel prices.” Ex. A (5/4/15 Arnold Rep.) at 6. Dr. Arnold explains that his “analysis of YQ Charges leads [him] to conclude that [it was] simply an element of the total price that BA charged its customers.” *Id.* In part for this reason, Plaintiffs will refer to the “fuel surcharge” by its technical name, the YQ Charge.<sup>1</sup>

### B. Dr. Hildreth’s at-issue opinions

Dr. Hildreth contends that he has shown “a high degree of correlation (over 70 percent) between BA’s [YQ Charge] and the price (or cost) of jet fuel kerosene.” Ex. B (8/28/15 Hildreth Rep.) ¶ 40. He claims, moreover, that he has measured “the degree to which the variation in BA’s [YQ Charge] is determined by the variation in the price (or cost) of jet fuel kerosene” and found that the variation in the price (or cost) of fuel highly determines the variation in the YQ Charge. *Id.*

Dr. Hildreth also devotes much of his expert report to a rebuttal of analysis contained in Plaintiffs’ Complaint, known as the r-squared analysis. *See* Ex. B (8/28/15 Hildreth Rep.) at ¶¶ 11, 20, 25-33. Although Dr. Hildreth is a rebuttal expert, he does not link his discussion of

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<sup>1</sup> The term “YQ” was created by the International Air Transport Association; it was the code BA used for the “fuel surcharge.”

Plaintiffs' Complaint to any expert testimony in this case. *Cf.* Ex. C (7/10/14 Hrg. Tr.) at 5:12-19 (Plaintiffs' counsel: "[W]e are not using the R-squared analysis. . . at all. . . we don't intend to use the R-squared analysis moving forward, and in fact, it wouldn't make any sense if we did."); *id.* at 7:20-8:2 (The Court: "I just want to confirm with the plaintiffs whether or not you will in fact be using R-squared analysis in the future." Plaintiffs' counsel: "[N]o, we will not be.").

### **III. DR. HILDRETH'S TESTIMONY SHOULD BE EXCLUDED BECAUSE IT IS UNRELIABLE AND IRRELEVANT.**

#### **A. Dr. Hildreth conducted his statistical tests in such a way that even completely random numbers will appear related to each other 75% of the time.**

Dr. Hildreth's testimony that the YQ Charge was highly correlated with the price (or cost) of fuel is not appropriate to present to the jury. The reason is simple: Dr. Hildreth conducted his tests in such a way that they lead to meaningless results. *See* Ex. D (9/14/15 Arnold Rep.) at ¶ 10 & n.20 (citing widely accepted, peer-reviewed research from a Nobel prize winning economist explaining this fact). When his methodology is applied to the type of data at issue in this case, it can cause even completely randomly generated numbers to appear related to each other 75% of the time. *See id.* In other words, Dr. Hildreth's "conclusions are entirely meaningless and his analysis wholly unreliable . . . [because he committed a] fundamental error in the fields of statistics and economics." *Id.* ¶ 15.

Broadly speaking, the problem is that Dr. Hildreth's analysis cannot be applied to what is known as non-stationary data. *Id.* ¶¶ 10, 12-15 (quoting textbooks, including one cited by Dr. Hildreth himself). Non-stationary data is data such as fuel prices and the YQ Charge that "wander" up or down rather than clustering around an average value. *See id.* ¶ 11 & n.21; *see also id.* ¶¶ 16-17 (testing the data at issue in this case and finding that it is non-stationary). A common example of non-stationary data is the stock market, which follows what has been

described as a “random walk.” *Id.* ¶ 11; *see also, e.g., Carpenters Pension Trust Fund of St. Louis v. Barclays PLC*, No. 12-CV-5329 SAS, 2015 WL 5000849, at \*16 (S.D.N.Y. Aug. 20, 2015) (Scheidlin, J.) (“[S]tock returns follow a random walk . . . .” (quoting an expert witness)).

When data is non-stationary, the types of tests that Dr. Hildreth conducted frequently shows that data is correlated even when it is not. Ex. D (9/14/15 Arnold Rep.) ¶¶ 10, 12-15 (citing peer-reviewed articles and textbooks, including a textbook cited by Dr. Hildreth, for this fact). As explained above, even randomly-generated data can appear related 75% of the time. *Id.* ¶ 10 & n.20. Plaintiffs thus ask the Court to exclude Dr. Hildreth’s testimony because his results are meaningless. *See Nimely*, 414 F.3d at 399 (“[S]uch a ‘methodology’ could not even begin to satisfy any of *Daubert*’s criteria for assessing the scientific reliability of an opinion . . . .”); *see also Valente v. Textron, Inc.*, 559 F. App’x 11, 13-14 (2d Cir. 2014) (unpublished) (“Where, as here, data is ‘simply inadequate to support the conclusions reached, *Daubert* and Rule 702 mandate the exclusion of that unreliable opinion testimony.’” (quoting *Ruggiero v. Warner–Lambert Co.*, 424 F.3d 249, 253 (2d Cir. 2005))).<sup>2</sup>

One final point is worthy of mention. It is possible to use well-accepted techniques in the field of statistics to “transform” non-stationary data into stationary data and to then run

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<sup>2</sup> It is well-established that statistical evidence must be excluded where, as here, the methodology is premised on a fundamental scientific error. *See e.g., Apple, Inc. v. Samsung Electronics Co.*, No. 12-CV-00630-LHK, 2014 WL 794328, at \*10 (N.D. Cal. Feb. 25, 2014) (excluding statistical evidence where methodology was applied improperly); *State Farm Fire & Cas. Co. v. Electrolux Home Products, Inc.*, 980 F. Supp. 2d 1031, 1049-50 (N.D. Ind. 2013) (same). It is important to draw a distinction between these on-point cases and other cases in which a statistical expert uses a generally reliable method, but fails to account for all possible variables in his analysis. *See, e.g., Bazemore v. Friday*, 478 U.S. 385, 398-99 (1986) (Brennan, J., concurring in judgment joined by all other justices) (explaining that a regression analysis need not include all possible relevant variables to be admissible); *cf. Werdebaugh v. Blue Diamond Growers*, No. 12-CV-02724-LHK, 2014 WL 7148923, at \*11 (N.D. Cal. Dec. 15, 2014) (declining to credit a regression analysis when the analysis was essentially meaningless without the omitted variable).



Dr. Hildreth's tests (properly) on the resulting stationary data. *See* Ex. D (9/14/15 Arnold Rep.) ¶ 19 (citing an economics textbook for the transformation used by Dr. Arnold). And when Dr. Hildreth's tests are run correctly—i.e., on stationary data—they do not show any correlation between the YQ Charge and fuel prices (or cost). *See id.* ¶ 20 (“This finding, while not dispositive of the issues in this case, corroborates my economic analysis that there is not a reasonable relationship between the YQ Charges and fuel prices or costs.”).

**B. Dr. Hildreth wrongly claims that correlation is the same as causation.**

Even setting aside that Dr. Hildreth's unreliable methodology cannot show any correlation between the YQ Charge and fuel prices, there is another problem with his testimony: he wrongly claims to be able to show causation. Ex. B (8/28/15 Hildreth Rep.) ¶ 40 (claiming that his data indicates that fuel prices “determine[]” the YQ Charge). Dr. Hildreth's claim here would be false even if Dr. Hildreth had conducted his tests properly:

[W]hile correlation and regression analyses are often used by economists, it is important to recognize that purely statistical analyses cannot provide definitive answers to most economic questions. Indeed, *contrary to the statement made by Dr. Hildreth that his regression analysis shows “the degree to which the variation in BA’s fuel surcharge is determined by the variation in the price (or cost) of jet fuel kerosene,” regression analysis does not demonstrate causation.* This is explained, for example, in the very first chapter of one of the textbooks Dr. Hildreth cited . . . . This in part is why I performed many economic analyses of the relationship between fuel prices and BA's YQ Charge, rather than looking to statistical tests of correlation.

Ex. D (9/14/15 Arnold Rep.) ¶ 8 (emphasis added) (footnotes omitted) (citing one of the texts upon which Dr. Hildreth relies).

Indeed, it is well-established that statistics cannot be used to show causation. *In re Pandora Media, Inc.*, 6 F. Supp. 3d 317, 368 n.86 (S.D.N.Y. 2014) (Cote, J.) (“Correlation does not equal causation.”), *aff’d sub nom. Pandora Media, Inc. v. Am. Soc. of Composers, Authors &*

*Publishers*, 785 F.3d 73 (2d Cir. 2015).<sup>3</sup> Even an expert in statistics who has applied reliable methods reliably to show correlation may not testify that one variable *caused* the change in the other. *E.g.*, *Huss v. Gayden*, 571 F.3d 442, 459 (5th Cir. 2009) (“Any scientist or statistician must acknowledge, however, that correlation is not causation”); *Norris v. Baxter Healthcare Corp.*, 397 F.3d 878, 885 (10th Cir. 2005) (affirming exclusion under *Daubert* when the expert attempted to testify that correlation indicated causation).

**C. Dr. Hildreth’s attempt to rebut the r-squared analysis is not relevant to any issue in this case.**

As indicated above, much of Dr. Hildreth’s report is devoted to attempting to rebut the r-squared analysis that was included in Plaintiffs’ Complaint. Dr. Hildreth’s primary criticism is that the r-squared analysis compared fuel (in dollars) to a YQ Charge in pounds sterling. *See* Ex. B (8/28/15 Hildreth Rep.) ¶ 27. Rather than engage this irrelevant criticism, Plaintiffs simply note that they produced their r-squared data more than two years ago—before any discovery had been conducted—in connection with proceedings on BA’s motion to dismiss. (*See* Dkt. 28-2 Ex. B). Had this been an issue under the standard governing a motion to dismiss (i.e., plausibility), BA presumably would have raised it then.

The r-squared data has no possible relevance now: Plaintiffs’ testifying experts did not conduct the r-squared analysis (nor did the consulting experts on whom they rely), Plaintiffs’ testifying experts do not purport to rely on the r-squared analysis, and Plaintiffs specifically explained to the Court that they will not be relying on the r-squared analysis. *See* Ex. C (7/10/14

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<sup>3</sup> For example, assuming Plaintiffs are correct and the YQ Charge was a “revenue maximization charge” rather than a true “fuel surcharge,” there would likely still be *some* relationship between the price of fuel and the YQ Charge. This is so because the airline industry’s largest cost during most of the class period was fuel, which means that the cost of fuel thus likely has a strong impact on the price that BA and its competitors can charge—i.e., a revenue maximizing charge will presumably have some relationship with the price of fuel even though it is not in any meaningful sense “based on” the price of fuel.

Hrg. Tr.) at 5:12-19 (“[W]e are not using the R-squared analysis. . . at all. . . we don’t intend to use the R-squared analysis moving forward, and in fact, it wouldn’t make any sense if we did.”); *id.* at 7:20-8:2 (The Court: “I just want to confirm with the plaintiffs whether or not you will in fact be using R-squared analysis in the future.” Plaintiffs’ counsel: “[N]o, we will not be.”).<sup>4</sup>

Dr. Hildreth’s testimony regarding the r-squared analysis should thus be excluded because it is not responsive to any testimony offered by Plaintiffs. *See Theoharis v. Rongen*, No. C13-1345RAJ, 2014 WL 3563386, at \*3 (W.D. Wash. July 18, 2014) (“At a bare minimum, a rebuttal expert cannot offer testimony unless the expert whom she rebuts has offered testimony. In addition, a rebuttal expert cannot offer evidence that does not contradict or rebut another expert’s disclosure merely because she [ ] has also offered some proper rebuttal.”). Indeed, it is well-established that expert rebuttal testimony must be excluded when it is not actually rebuttal. *See, e.g., Equal Employment Opportunity Comm’n v. JBS USA, LLC*, No. 10-CV-02103-PAB-KLM, 2014 WL 2922625, at \*8-9 (D. Colo. June 27, 2014) (collecting cases); *Blake v. Securitas Sec. Servs., Inc.*, 292 F.R.D. 15, 17-18 (D.D.C. 2013) (collecting cases); *cf. Pierson v. Ford Motor Co.*, No. C 06-6503 PJH, 2009 WL 1034233, at \*3 (N.D. Cal. Apr. 16, 2009) (“[T]he issue of the adequacy of the warnings is no longer in the case. There is, in effect, nothing for [the expert] to rebut.”). And Dr. Hildreth’s commentary about the r-squared analysis is not rebuttal. *See, e.g., Ex. C* (7/10/14 Hrg. Tr.) at 5:12-19 (“[W]e don’t intend to use the R-squared analysis moving forward, and in fact, it wouldn’t make any sense if we did.”).

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<sup>4</sup> BA also served Requests For Admission, and each of the named plaintiffs admitted that he or she would “not rely on the R-squared analysis at class certification, summary judgment, or trial.”

## **CONCLUSION**

Dr. Hildreth applied his statistical methodology so that even random numbers can appear correlated 75% of the time. He also attempts to testify incorrectly that correlation is the same as causation, and much of his expert report discusses the r-squared analysis, which is not at issue in this case. Accordingly, Plaintiffs respectfully ask the Court to exclude Dr. Hildreth's testimony.

Dated: October 1, 2015

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify that on October 1, 2015, service of this document was accomplished via e-mail and hand delivery.

A handwritten signature in black ink, appearing to read 'Jason L. Lichtman', is written above a horizontal line.

Jason L. Lichtman